Astronomische Nachrichten (supp. No. 4383) it is announced that Dr. Wright, of the Lick Observatory, has made a daylight observation which shows the spectrum of the comet's nucleus to be continuous, with the sodium, D, lines bright. Similar observations are reported in the *Daily Telegraph* (January 24) from the Glasgow Observatory, with the addition of a "hydrocarbon" band. This occurrence of the D lines recalls the Wells's, and the Great, comets of 1882, in which Copeland and Lohse observed the same lines intensely bright, due, according to Copeland, to the near approach of the comet to the sun. In the present case the rapidity with which the comet appears to have travelled when near perihelion further suggests a similarity.

The publication of a set of elements and an ephemeris by the Kiel Centralstelle (Circular No. 117) provides for observations during the next few days. The elements are based on observations made at Algiers on January 18, 19, and 20, and are as follows:—

Elements.

$T = 1910$, January 17·42 (M.T. Berlin).
$\omega = 263^\circ\ 5'7$
$\Omega = 8^\circ\ 56'2$ } 1910·0
$i = 62^\circ\ 16'1$
$\log q = 8{\cdot}6169$

The following is an abstract from the ephemeris:—

Ephemeris for 0h. (M.T. Berlin).

1910	R.A. h. m.	Decl. ° ′
January 26 ...	21 25·3 ...	+0 20
27 ...	21 31·2 ...	+2 30
28 ...	21 36·7 ...	+4 14
29 ...	21 42·1 ...	+6 2
30 ...	21 47·2 ...	+7 45

Observations made by Prof. Turner, Dr. Lockyer, and others, indicate that this ephemeris is incorrect in declination, and that on January 25 the observed position was about 2° south of that given by the ephemeris. Prof. Turner reports that the discordance is increasing.

Observations made on January 24 and 25 indicate that the comet's brightness is decreasing. In the *Times* of January 25, Sir Robert Ball reported that "Prof. Newall finds a remarkable spectrum," and the Rev. T. E. R. Phillips stated that the double tail was not unlike that of the great comet of 1874, but with the gap in the centre much wider than in that case. Further photographs were secured at Dunsink and Oxford on Tuesday. In the *Times* of January 26 Sir Robert Ball reports that the comet was again observed, between 5 and 6 p.m. on Tuesday. It was much fainter than on Saturday, but the tail was quite 10° long, and was slightly curved towards Venus. The bright yellow light was still present, but fainter.

Bright, "daylight," comets are not frequent visitors; the tale for the nineteenth century is practically completed by the comets of 1843, 1847, 1853, 1861, and 1882, and it is a curious coincidence that this present visitor should arrive at the time when we had settled down to the carefully ordered study of the rediscovered Halley. But reference to the notes presented to the Royal Astronomical Society by Messrs. Cowell and Crommelin will show that the coincidence is not unique; quite a number of returns of Halley's comet have been marked by the appearance of exceptionally bright sporadic visitors.

The present object has been introduced to us under a misnomer. The *Astronomische Nachrichten* now tells us that the appellation "Drake" is simply due to a misinterpretation of "great" as the message was being transmitted by telephone; popularly it is the "Daylight Comet."

W. E. ROLSTON.

NOTES.

WE regret to see the announcement of the death, at Marburg, of Prof. F. Kohlrausch, the distinguished physicist, at seventy years of age.

THE death is announced, at sixty-two years of age, of Prof. H. Brunner, professor of toxicological chemistry in the University of Lausanne since 1876.

THE Friday evening discourse at the Royal Institution on February 4 will be delivered by Prof. W. Bateson, F.R.S., on "The Heredity of Sex."

PROF. A. LACROIX has been elected president for 1910 of the Geological Society of France. M. Œhlert, Mme. Œhlert, Prof. Vidal, and M. Cossmann have been elected vice-presidents. This is the first time a lady has been elected to office in the society.

TO the *Field* of January 22 Mr. Lydekker contributes an account of an apparently new race of buffalo obtained by Mr. Hilton-Simpson in the extreme south of French Congoland; the race appears to be allied to the red Congo buffalo, but is of much darker colour.

ACCORDING to a statement in the *Times* of January 17, three skeletons of sauropod dinosaurs have recently been discovered in the Jurassic strata of Utah by a collector from the Carnegie Museum, Pittsburg. One of the three is stated to be higher and more massive than that of the type of *Diplodocus carnegiei*, although its length—84 feet—is somewhat less.

THE council of the Royal Geographical Society has decided to award a special gold medal to Commander Peary for his journey to the North Pole, and for having undertaken such scientific investigations as his opportunities permitted; and a silver replica to Captain Bartlett for attaining eighty-eight degrees north latitude.

ACCORDING to the New York correspondent of the *Times*, the U.S. Department of Commerce and Labour has under consideration the dispatch of the Government steamship *Albatross* on an expedition to the Antarctic Ocean. The expedition is the suggestion of Dr. H. F. Osborn, of the American Museum of Natural History, New York. The objects of the proposed expedition are stated to be partly commercial and partly scientific. There appears to be reason to believe that some of the remote southern islands are the homes of herds of the southern fur seal, and it is hoped to discover these, as well as to study south polar fauna generally.

A SERIES of lectures in connection with the Selborne Society has been arranged, and will be held in the theatre of the Civil Service Commission, Burlington Gardens, London, W. The first lecture of the course was delivered by Mr. F. Enoch on January 21, and dealt with insects through the camera. There was a large audience. The lecture, which aroused great enthusiasm, gave the results of many years of patient outdoor research, and was illustrated by a unique series of three-colour photographs. On February 11 Mr. W. Bickerton will lecture on wild birds and their ways; on March 11, Mr. W. M. Webb on clothes a human nature-study; and, on April 8, Miss Gertrude Bacon on wind, wave, and cloud. Fuller particulars may be obtained from the honorary general secretary of the society, 42 Bloomsbury Square, London, W.C.

IT is with regret that we see the announcement of the unexpected death of Dr. W. Page-May, fellow and lecturer of University College, London, which occurred quite suddenly at Brighton on Wednesday, January 19. To

those associated with him at University College, where, during the years since his return from Helwan, he carried out his work on the central nervous system, as well as to a far larger circle of friends, his early death, when he was in the full vigour of his intellect, has been felt as a heavy loss. Dr. Page-May brought a well-trained mind to the study of neurology. He was thoroughly familiar with the literature of this subject, and also with all the special physiological and histological methods which have so largely contributed to those conceptions, which are held at the present time, of the minute structure and modes of action of the brain. Several researches were in actual progress at the time of his death. Among the more important of his papers we may mention the "Investigations into Segmental Representation of Movements in the Lumbar Region of the Mammalian Spinal Cord," published in the Philosophical Transactions of the Royal Society, 1897; and numerous papers in *Brain*, on "The Afferent Path," and, in collaboration with Dr. Gordon Holmes, "On the Exact Origin of the Pyramidal Tracts in Man and other Mammals."

RECORDS of severe earthquake shocks were obtained at many seismological observatories on Saturday, January 22. The following observations of shocks are recorded:—at 7.45 a.m. at Seydisfjord, in Iceland; at Akureyri, in the same island, at about 8 a.m.; at 8.52 a.m. by Prof. Milne at Shide, in the Isle of Wight; at 8.45 a.m. by Prof. Belar at Laibach, in Austria. A disturbance was registered at the Parc Saint-Maur earthquake station, Paris, at 9 a.m., and was most violent from 9.4 to 9.24 a.m. The French observers locate the earthquake as occurring at a distance of about 3000 kilometres from Paris in a south-easterly direction, and it is believed to have visited the Caucasus or Armenia. Prof. Milne is reported to have estimated the distance of the origin of the shock at a little more than a thousand miles. Prof. Belar is said to have given the distance as 2500 miles, and suggests Asia as the seat of the disturbance.

THE council of the Royal Meteorological Society has forwarded a memorial to the Royal Commission which is now inquiring into the work of the University of London urging that the time is fully ripe for placing the study of meteorology on a more satisfactory basis, and for its inclusion among the subjects for degree examinations. The council has arranged for a provincial meeting to be held at Manchester on February 23, and it is hoped that this will be the means of making the work of the society better known in a district in which considerable attention is already being given to meteorology. At the annual meeting of the society the president presented to Dr. W. N. Shaw, F.R.S., the Symons gold medal for 1910, which had been awarded to him in consideration of his distinguished work in connection with meteorological science.

MR. EDWARD T. CONNOLD, whose death is announced, was born at Hastings on June 11, 1862. He is best known from his researches in connection with British plant-galls, upon which he published the following beautifully illustrated works:—"British Vegetable Galls" (1901), "British Oak Galls" (1908), and "Plant Galls of Great Britain" (1909). At the time of his death he had in preparation a work on British wild fruits. His collection of plant-galls is exhibited at the Hastings Museum, in which institution he took great interest. On the formation of the Hastings and St. Leonards Natural History Society in 1893 he became honorary secretary, and at once entered upon his duties with characteristic enthusiasm. He was an excellent lecturer on popular natural history, while his skill as a photographer is attested by the plates with which his published works are embellished.

WE have to acknowledge the receipt of a catalogue of publications relating to "Evertebrata," issued by Mr. W. Junk, of Berlin, and containing more than six thousand items.

DR. C. HOSSEUS, of Berlin, communicates to the January issue of *Urania* a brief *résumé* of two collecting trips in Siam, in the course of which much valuable material was obtained. Special attention is directed to the important *rôle* played in Siam by elephants, which, unlike their cousins in India, breed more or less freely in captivity.

Naturen for January opens with a long and well-illustrated article, by Dr. D. Damas, on the oceanography of Greenland, based on the observations made by the *Belgica* expedition of 1905. Maps show the extent of the ice at different seasons, while the bathymetrical variation in salinity is illustrated by diagrams.

IN the January number of *Knowledge* the question is raised, under the heading "Zoological Notes," whether there were ever English species-names for many of the better known kinds of animals, the two sexes of which have distinctive designations of their own. As examples may be cited mallard and duck, bull and cow, dog and bitch, and horse and mare. In the opinion of the writer of the note, no species-name originally existed in these and many other cases.

IN the Journal of the Quekett Microscopical Club for November, 1909, Mr. W. Wesché states that, having discovered a few years ago the viviparous propagation of the tachinid fly known as *Phorodera serriventris*, he was at a loss to understand why the female required an ovipositor, more especially one of unusual form. The problem was solved by observations made at Mersea Island, off the Essex coast, last summer. From these it appears that, after birth, the living larvæ are introduced by means of a very sharp hook on the under surface of the body of the female into the bodies of caterpillars, the fly making an aperture for their entrance by forcing the hook into its victims. The necessary purchase on the body of the caterpillar is obtained by the grip of the two serrated abdominal plates in advance of the hook, this giving a hold in an opposite direction to the force expended on the penetrating hook. When not in use, the hook is folded in the median line under the abdomen. The larvæ have strong chitinous jaws, which are visible through the integuments of the gravid female, and in one instance the author counted no fewer than ninety-eight jaws, although such a number appears to be unusual.

THE greater portion of the contents of vol. xxxi., Nos. 3 and 4, of Notes from the Leyden Museum, is devoted to entomological subjects, among which reference may be made to a paper, by Dr. A. Forel, on ants obtained on Krakatau and in Java by Mr. E. Jacobson, with biological notes by the collector. The latter gives copious notes on the habits of the species known as *Polyrhachis dives*, of which a colony was in the habit of invading the bath-room of his residence. The ants effected an entrance through a chink in the wall, so that the nest could not be discovered. They made their appearance in the evening, but were in no wise disconcerted by gaslight, and so freely did they drink that their abdomens became greatly distended. The author, who kept many of these ants in captivity, gives figures of three of their nests. In July, 1905, he found that many of the ants were badly infested with nematode worms, the stomach of one in

dividual containing no fewer than fifteen parasites. A nematode taken by Mr. Jacobson from *Camponotus maculatus* was described by Dr. von Linstow as a new species, under the name of *Ochetocephalus javanicus*, in vol. xxix. of the "Notes."

PROF. G. HABERLANDT has arranged with the publishers of his "Physiologische Pflanzenanatomie" to issue separately the chapters from the latest edition of his book dealing with the perceptive organs of plants. This gives botanists the opportunity of obtaining in a small brochure, at a price of two marks, the essence of the experiments and arguments put forward by the author and other physiologists in connection with the statolith theory of gravity-perception, and in favour of regarding such anatomical peculiarities as papillæ, hairs, &c., in certain plants as mechanisms for the perception of light and contact.

INDIVIDUAL variation in the development of plants is the subject of a paper, by Dr. K. Koriba, forming vol. xxiii., art. 3, of the Journal of the College of Science, Tokyo. Horse beans and peas were germinated and afterwards grown, some as water-cultures in tap-water, others in solutions containing zinc or copper sulphate, and others again in soil. Their development was estimated chiefly by the increase of length in stem and root. It is noted that these organs respond differently to changes in external conditions. Thus growth of the root continues at a lower temperature than growth of the stem, while at a higher temperature the reverse holds good; also a poisonous solution affects the root more readily. According to the observations quoted, heavy seeds do not always germinate most quickly, so that individual quality is considered to be more potent than weight.

THE report for the year 1908 of the director of the botanic gardens and Government domains in Sydney has been received. There is special reference among native plants to a new variety of the shrub *Acacia salina* and the monocotyledonous plant *Aneilema gramineum*, related to Tradescantia. A number of the latest successful introductions come from South Africa, notably species of Aloe; these and species of Agave from Mexico appear to find the climatic conditions they require. Among the grasses, *Festuca arundinacea* and *Panicum muticum* are regarded as valuable species alike for fodder purposes and for decoration. A list of troublesome weeds includes *Allium fragrans*, *Cyperus rotundus*, *Hypochaeris radicata*, *Medicago denticulata*, and *Portulaca oleracea*.

A SKETCH of the flora of Siam is contributed by Dr. C. C. Hosseus to *Globus* (vol. xcvi., Nos. 10 and 11), where he describes the chief types of vegetation studied by him during several journeys into the interior. The country is rich in forests. An extension of the Indian sub-Himalayan pine forests, where *Pinus Khasya* is dominant, is found in the extreme north. There are luxurious evergreen forests containing oaks, laurels, species of Cinnamomum, Cephalotaxus, and Podocarpus at different altitudes, where lianes, ferns, and orchids grow in profusion. The teak forests seldom rise above 900 feet; the predominating teak is accompanied by *Albizzia procera*, *Butea frondosa*, and Xylia. The Dipterocarp forests growing on laterite also show a great wealth of vegetation. Below these formations occur the forests and grass lands of the Savannahs, while near the coasts the swamps provide habitats for Pistia, Salvinia, Azolla, Nymphæa, and Nelumbium. Finally, a mangrove belt lines the islands and coasts.

THE North Carolina Department of Agriculture has issued an illustrated bulletin on some common birds of the farm, including the *bob-white* (*Colinus virginianus*), night-hawk or "bullbat" (*Chordeiles virginianus*), meadow-lark (*Sturnella magna*), and the various wood-peckers. Particular attention is directed to the food they take.

THE first of the new series of scientific bulletins issued by the University of Wisconsin Experiment Station deals with the function of phosphates in the nutrition of animals. At least 3 grams of phosphorus were found to be necessary for a growing pig of 50 lb. weight, otherwise the animal withdrew from its skeleton both calcium and phosphorus in the proportions found in tri-calcic phosphate. In another bulletin, dealing with the phosphate contents of soils, we find the remarkable result that heavy manuring such as is practised in tobacco culture led to a great loss of phosphates from the soil. N/5 nitric acid proved a useful solvent in determining whether or not soils are deficient in phosphates.

THE Proceedings of the Indiana Academy of Science contain reports of the papers read at the twenty-fourth annual meeting at Purdue University, Lafayette, Indiana. The president, Mr. Glen Culbertson, dealt with deforestation and its effects among the hills of southern Indiana. A report was also presented on the work of the pathological laboratory of the Central Indiana Hospital for the Insane, Indianopolis. Other papers dealt with local mycological problems, heterœcious plant rusts of Indiana, the rust of timothy, dissemination of disease by means of the seed of the host plant, and so on. There is an anthropological paper on the "shake" dance of the Quilente Indians, and a number of chemical and biological papers.

ATTEMPTS have been made to introduce into the West Indies from the United States new varieties of ground nuts, noted for the large size of the nuts and their heavy yield. The results have been somewhat disappointing, partly on account of the severe attacks of fungi. A description is given in a recent issue of the *Agricultural News* of the fungi already observed, but there are others still to be identified. One of the Uromyces has done a good deal of damage, and could not be kept in check by the ordinary remedies. Another fungus, not yet identified, attacks the roots. The diseased portions exhibit a fine web-like mycelium, covered in its older portions with straight, rod-like crystals. These form small white tufts, which grow somewhat, become yellow, and finally brown. They are about a quarter of an inch in diameter when fully grown, and roughly spherical in shape. In fruiting they show two or three layers of firm, brown hyphæ forming an outer covering which encloses a mass of swollen colourless hyphæ, complete but undifferentiated. They are probably of the nature of sclerotia. No other fruiting bodies have yet been found.

THE Journal of the College of Agriculture, Tohoku Imperial University, Sapporo, Japan, contains a paper by S. Ito (in English) on the Uredineæ parasitic on the Japanese Gramineæ. Some 800 specimens were examined, collected from different parts of Japan, from Saghalien and the Kurile Islands in the north to Formosa in the south. They fall into six genera. Seventy-three species and two varieties are recorded for the first time in Japan, while no fewer than twenty-one are altogether new to science. The other paper, by Y. Niisima, contains a detailed description (in German) of the Scolytidæ injurious to forest trees. There is an enormous mass of detail in these papers, and the illustrations are very beautifully done; indeed, the publications of the Japanese agricultural

colleges are beyond question the most beautifully illustrated of the agricultural journals.

THE current West Indian Bulletin (vol. x., No. 2) contains, as usual, a number of interesting articles on West Indian products. Among them is a statement of the present position of the cotton industry, showing a rapid increase in spite of one or two set-backs in a few unsuitable districts. The estimated value of the lint in 1902 was 7366*l.*; in 1907 it was 172,294*l.* A pamphlet is also issued summarising the experiments on sugar-cane at Barbadoes with seedling canes and with various manures. The striking result was brought out that potash and nitrogen manures increased the amount of sugar while phosphates diminished it. The Bulletin of the Jamaica Department of Agriculture, the second of the new series, is quite up to the standard set by the first, and contains an interesting article, by Mr. Ashby, describing the bacterial production of sulphuretted hydrogen from certain obnoxious ponds near Jamaica. There are also some well illustrated and interesting articles on the Indian cattle of the island and the Hereford herd of Knockalva.

AN interesting preliminary notice, by Mr. P. A. Curry, of the results obtained in the research of the upper air above the Blue Hill area during the rainy season of 1909 is published in the *Cairo Scientific Journal* for October last. The main object was to find the direction and velocity of the wind at different heights above Roseires by the use of small pilot balloons, of which seventy-nine were released. The surface wind, which was slightly west of south, veered to south-west at 1500 metres; at 3000 m. north-east winds were somewhat predominant, veering to slightly north of east at 3500 m. From that altitude to 6000 m. it was very constant in direction, at which point it backed slightly to north-east at 9000 m., then veering again to east at 12,000 m. One balloon which rose above this showed a due east wind at 13,000 m. and 14,000 m., veering to east-south-east at 18,000 m. Up to 3000 m. the velocity averaged little more than 5 metres per second, increasing to 10 m.p.s. at 6000 m.; it then decreased to 8 m.p.s. at 7000 m., and remained fairly steady up to 10,000 m. Above this altitude the velocity increased rapidly. The results show a fairly steady circulation whether rain falls or not, and the limiting height of the upper easterly drift does not decrease on dry days, as was found to be the case in Abyssinia.

DR. G. H. SAVAGE has sent us a reprint of the Harveian oration delivered by him before the Royal College of Physicians of London on October 18, 1909. Dr. Savage selects for the themes of his lecture experimental psychology and hypnotism, and emphasises the importance of taking into consideration the teaching and methods of these subjects with regard to neurological and mental pathology.

MR. B. A. GUPTE, assistant director of ethnography for India, has issued the preliminary draft of a collection of passages from the sacred books of the Hindus, Jains, Buddhists, and Mohammedans, dealing with women in India, their life, morals, character, rites, and ceremonies, which is of considerable interest. In a subsequent edition the compiler would do well to give definite references to his authorities, which would add considerably to the interest of the collection.

IN an article entitled "Mental Processes and Concomitant Galvanometric Changes" (*Psychological Review*, January), Dr. Daniel Starch investigates the changes in resistance of the body to a weak electric current during varying mental conditions. He concludes that all kinds of mental states are accompanied by galvanometric changes, and that emotional states and muscular activity produce the widest deflections, habitual activity and the process of visual attention producing the least. He finds that quiet mental activity, even when considerable effect is involved, produces only small galvanometric effects.

IN a note published in the Bulletin of the Imperial Earthquake Investigation Committee (vol. iii., No. 2, Tokyo) Prof. Omori considers briefly a subject already touched on by Mr. Oldham, namely, the dependence of the velocity of seismic waves on the nature of the path traversed by them. He calculates the mean surface velocity of the first preliminary tremors by the "difference method" for three earthquakes, and finds it to be 16·02 km. per second for the Guatemala earthquake of 1902, 11·36 km. per second for the Indian (Kangra) earthquake of 1905, and 13·97 km. per second for the San Francisco earthquake of 1906. In the first case the wave-paths were mainly submarine, in the second mainly continental, in the third partly continental and partly submarine. The differences in velocity may thus be due to a deficiency in rigidity in the continental portions of the crust (especially in the centre of Asia) and to an excess of rigidity beneath the Pacific and Atlantic Oceans.

THE Mines Department of South Australia has issued an interesting report, dealing with the mineral output of the State for the half-year ending June 13, 1909 ("A Review of Mining Operations in the State of South Australia during the Half-year ending June 30, 1909," No. 10, Adelaide, 1909). The chief mineral in South Australia is copper, produced from a large number of small scattered mines, but they were less active than usual owing to the low price of copper. There are many small gold mines, of which Arltunga is the most important field, but, owing to its inaccessible position, only very high-grade ores can be worked there. The average grade of the ore in the thirty small mines reported is 102*s.* per ton. The total quantity of ore treated from this field has been only 10,000 tons. Steady progress is being made with the phosphate mines, and a company is working one of the numerous deposits of high-quality china-clay found in South Australia.

IN the *Electrician* for January 7 Mr. Fournier D'Albe commences a series of articles on recent advances in electrical theory. The first instalment deals with the doubts which have been recently cast on the necessity for assuming an æther, with the principle of relativity, the Fitzgerald-Lorentz theory of the change of length of a body moving through space, and with the problem of aberration. The articles should prove a useful introduction to a subject which is one of the most interesting before the scientific world at the present time. There is a slight error in the statement of the amount of expansion of a rod which observers would postulate if the observed times of to and fro motion of light were the same with the rod at rest and in motion through the æther parallel to its length respectively. The amount of change stated by the author is that which would be postulated if the times were found the same when the rod moved with the same velocity with respect to the æther parallel and perpendicular to itself respectively, as in Michelson and Morley's experiments.

IN the December (1909) number of *Le Radium* M. Jean Perrin gives an account of his measurements of the Brownian movements in emulsions of gamboge and of mastic, and of the calculations of a number of molecular

constants he has based on those observations. If it is assumed that the movements of the granules in such emulsions can be classed with those of the molecules of a gas, the theory of the equal partition of the energy amongst the molecules of mixed gases leads to the conclusion that the mean kinetic energy of translation of these granules is identical with that of gas molecules. If, then, the kinetic energy of the granules can be determined, the number of gas molecules in a cubic centimetre of gas under normal conditions may be calculated. M. Perrin determines the kinetic energy of the granules in two independent ways:—first, from measurements of the distribution of the granules at different heights in the emulsion, which he finds follows the same law as in gases; second, from measurements of the displacements of the granules in a given time, and the law which Einstein has deduced for the connection between displacement and mean kinetic energy. Both lead to the conclusion that the number of molecules in a gram molecule is $70{\cdot}5 \times 10^{22}$.

COMMENTING on the death of M. Delagrange, *Engineering* for January 14 points out two special features of technical interest in this aëroplane accident. In the first place it is the first fatal accident with a machine of the monoplane type, and, in the second, it is the first which appears to be distinctly owing to a failure in the main structure of the machine used. It seems to have been generally assumed that the biplane is a safer machine than the monoplane, yet the fact remains that the greater number of accidents have happened to the biplane. There seems to be good reason to suppose that the death of M. Delagrange was caused by the main framing forming one of the wings giving way altogether, followed by the fall of the machine. The general construction of the framing is that of a trussed girder constructed of wood and steel wire. The wires are very numerous in the biplane as compared with those required in the monoplane frame. Usually the wire stays are of solid steel wire or ribbon, which gives little indication of readiness to break. Stranded wire rope is better from this point of view, as ample warning is always given by some of the strands breaking before the rope finally gives way. The broken strands are very easily detected. Further, many machines of both types have the spars insufficiently stayed or not stayed at all against the longitudinal pressure due to the air resistance, which pressure in such cases will be taken up entirely by the spars. To make the aëroplane of practical use, trustworthiness and safety are required, and more attention should be given to these rather than to cutting down structural weights for the purpose of striving after "records."

THE December (1909) number of the *Journal of Physical Chemistry* contains a series of determinations, by Messrs. O. C. Schaefer and H. Schlundt, of the dielectric constants of the anhydrous halogen acids, which gave the following values:—

HI	... ...	21·7°, 2·90; −50°, 2·88; −70° (solid), 3·95.
HBr	... ...	24·7°, 3·82; −80°, 6·29.
HCl	... ...	27·7°, 4·60; −90°, 8·85.
HCN	...	−25° (solid), 2·4; −70° (solid), 3·05.

Attention may also be directed to a paper, by Mr. M. M. Garver, on a kinetic interpretation of osmotic pressure, in which the fundamental assumption is made that, whilst the average velocity of water-molecules in a sugar solution is the same as in pure water at the same temperature, the *range of variation* on either side of the mean is greatly reduced, so that vaporisation and freezing are alike rendered more difficult.

THE volume of the Journal of the American Chemical Society, which has just been completed, is remarkable, not only for the importance of the researches that are described in it, but also for the excellent conciseness with which the results are presented. Two papers by Mr. F. F. Rupert, on the properties of aqueous ammonia and aqueous hydrochloric acid, might be cited as models, not only of accurate and thorough investigation, but of successful resistance to the temptation to expand the bulk of the paper in proportion (or out of proportion, as the case may be) to the importance of the subject. The isolation of ammonium hydroxide, $(NH_4)OH$, and of ammonium oxide, $(NH_4)_2O$, is recorded, for instance, in a paper which covers less than three pages, and congratulations are due from the reader to authors and editor alike on the excellent results that have followed from their cooperation in this respect. The contents of the volume are of such a character as to give much support to the invitation that has recently been extended to English chemists to become members of the American society.

THE Institute of Chemistry has issued a third edition, revised and enlarged, of the "List of Official Chemical Appointments." The list has been compiled by Mr. R. B. Pilcher, registrar and secretary of the institute, and is sold at 2*s*. net. It is arranged in three main divisions:—appointments in Great Britain and Ireland, under the various departments of State, county and borough councils, and other authorities, together with professorial and teaching appointments in schools and colleges in this country; appointments in India and the colonies; and an appendix giving information regarding chemical societies and institutions. A register of fellows and associates of the institute who are seeking appointments is kept at the office of the institute, so that authorities may obtain the services of qualified professional chemists as vacancies arise. In many instances particulars are given in the list as to the Acts of Parliament under which appointments are made, and the regulations and conditions governing the selection of candidates for them. Intended primarily for the use of professional chemists, the publication should be found useful by authorities and persons interested in the applications of chemistry to purposes of State and in the promotion of higher chemical instruction.

A SECOND edition of Mr. G. M. Norman's "Systematic Practical Organic Chemistry" has been published by Mr. W. B. Clive at the University Tutorial Press, Ltd. Various alterations and additions have been made to the book in order to meet the new requirements of the Board of Education syllabus in the subject.

THE popular lectures to be given at the Royal Victoria Hall, Waterloo Bridge Road, S.E., on Tuesdays during February, include the following:—Mr. H. S. Rowell, on "Aëronautics"; Mr. Horace W. Monckton, on "Berkshire, Geological, Geographical, and Historical"; and Mr. E. Cuthbertson, on "The Constitution of Atoms."

COTTERILL AND SLADE'S well-known text-book, "Lessons in Applied Mechanics," has now been published by Messrs. Macmillan and Co., Ltd., in two parts. The first volume includes the sections dealing with the principle of work and hydraulics, and the second those concerned with the strength of materials and structures. The separate volumes meet the needs of students preparing for the various examinations in applied mechanics held by the Board of Education.